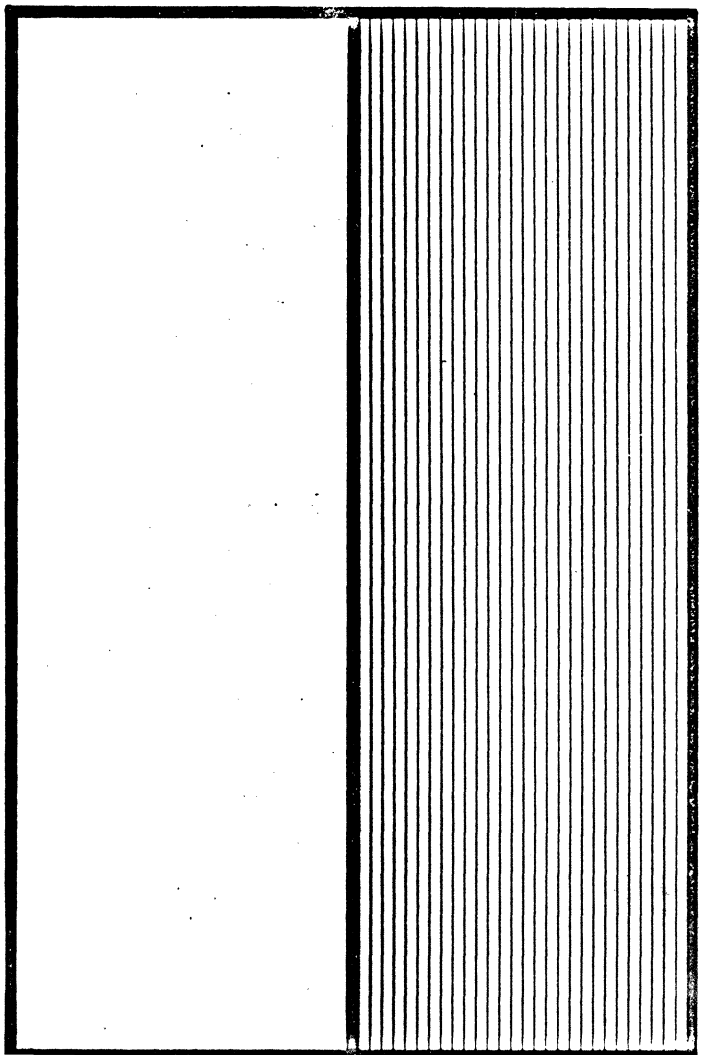
4091712

SPERRY RAND

UNIVAC 9400 SYSTEM

PROGRAM DESCRIPTION DRAWING



CUSTOMER ENGINEERING

SPERRY RAND UNIVAC

DRAWING NO. 4091712

REVISION -

CUSTOMER ENGINEERING
PRODUCT DIAGNOSTIC SOFTWARE

9400 - 5024/8424 or 8425 Disc Prep Routine D2090

	SIGNATURE	TITLE	DATE
APPROVAL			
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REVISION STATISTICS RECORD

4091712

DWG REV	MSTR REV	RELEASE DATE	DESIGNER NAME	EIR NUMBER	FCO NUMBER
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REVISION DESCRIPTION RECORD

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1. INTRODUCTION

1.1 Purpose. This document describes a 9400 Maintenance test program for the 5024/8424 of 25 Subsystem.

1.2 Major Objectives. The objective of this test program is to perform a test of the 5024/8424 or 25 Subsystem. Test organization and operator options are intended to satisfy the needs of Design, Quality Control and Field Engineering personnel in checkout, acceptance and maintenance activities.

1.3 Equipment Configurations. All equipment configurations must be connected to a Selector I-O channel of the 9400 Processor. This test will operate the following equipment configuration:

- Disc File Control - Type 5024
- Disc Drive - Type 8424 or 25
- Disc Pack Assembly - Type F12 14-01

1.4 Associated Software. This program has DSKH included as an integral part of the program. This is the standard disc handler routine used by all Disc Maintenance test programs. It is the interface between the program and MCR, which performs program load, parameterization, execution, deletion, I-O handling, and message handling.

1.5 Reference Documents

DRAWING	DESCRIPTION
S70040	UNIVAC 9400 Processor, Type 3019-00 and -01.
—	UNIVAC 9400 Dual I-O Selector Channel, Type XXXX-00 and -01.
P10076	Disc File Control, Type 5024. 8424 or 25
4091622	Maintenance Control Routine.
4091623	Parameter and Message Routines.
4091670	5024/8414 Disc Program Handler.

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2. FUNCTIONAL DESCRIPTION

2.1 General Organization. This program is divided into two parts, one which writes Home Address and Track Descriptor Record on preselected tracks and another which declares a preselected track as defective and assigns another preselected track as the alternate track.

2.2 Program Description

2.2.1 Test 1 (Group Test)

This test if selected, will run only test 2, since test 2 and 3 will not be run together.

2.2.2 Test 2

Objective - This program writes a Home Address and a Track Descriptor Record on the tracks specified by test parameters.

Method - The starting and ending track number can be any track. The format of the data is as follows: Note: Modified use of V17 for Test 2, Refer to Sec 4.3

Home Address -

- Flag Byte - Ø Ø
- Cylinder Number - Ø Ø C C
- Head Number - Ø Ø H H

Track Descriptor Record -

- Cylinder Number - Ø Ø C C
- Head Number - Ø Ø H H
- Record Number - Ø Ø
- Key Length - Ø Ø
- Data Length - Ø Ø Ø 8
- Data Field - Ø Ø C C Ø Ø H H Ø Ø Ø E 2 9 Ø Ø

After writing the HA - TD records as specified, the program will read them back and check against what was written. Any miscompare causes an error printout.

2.2.3 Test 3

The second part of the program gives the operator the ability to designate a track as defective and assign an alternate track in its place. The defective primary track number and the alternate track number are keyed in by the operator. The program reads the Home Address of the alternate track and checks the flag byte. If the flag byte indicates that the alternate track is bad or has been assigned previously, a message is printed. A new alternate track will have to be selected and the program rerun. If the flag byte of the alternate track is zero, the program will rewrite the Home Address and Track Descriptor records of the alternate track and the defective primary track. These records will be written with the following format:

Alternate Track
- Home Address
  - Flag Byte - 01
  - Cylinder Number - $00C_AC_A$ } Alternate Track Address
  - Head Number - $00H_AH_A$ }

2.2.3 continued . . .

Track Descriptor Record (R0)
Cylinder Number - $00C_PC_P$ Primary Track Address
Head Number - $00H_PH_P$

Record Number - 00
Key Length - 00
Data Length - 0008
Data Field - $\emptyset\emptyset C_AC_A\emptyset\emptyset H_AH_A\emptyset\emptyset\emptyset E29\emptyset\emptyset$

Defective Primary Track

Home Address
Flag Byte - 02
Cylinder Number - $00C_PC_P$ Primary Track Address
Head Number - $00H_PH_P$

Track Descriptor Record (R0)
Cylinder Number - $00C_AC_A$ Alternate Track Address
Head Number - $00H_AH_A$

Record Number - 00
Key Length - 00
Data Length - 0008
Data Field - $\emptyset\emptyset C_PC_P\emptyset\emptyset H_PH_P\emptyset\emptyset\emptyset E29\emptyset\emptyset$

2.2.4 Test 4 - Fixed Pattern Surface Analysis

V6/XX ZZ/ZZ ZZ will allow selection of four test patterns.

V6/XX ZZ/ZZ 01 will allow selection of three test patterns.

V6/XX ZZ/01 XX will allow selection of two test patterns.

V6/XX 01/XX XX will allow selection of one test pattern.

where: XX is <u>any</u> hexadecimal character

ZZ is any hexadecimal character other than 01. The 01 code will terminate the pattern selected.

If V6 is omitted, the program uses the following patterns one at a time:

FF 00 AA E5

Performs a complete surface analysis and flags defective tracks. Alternate tracks are not assigned.

2.2.5 Test 5 - Shifting Pattern Surface Analysis

V6/XX XX/ZZ ZZ will allow any two byte pattern XXXX to be shifted ZZZZ (hexadecimal) number of times.

If V6 is omitted, the two byte pattern FF00 will be shifted 8 times.

3. OPERATING PROCEDURES

The Disc Handler Routine DSKH is used as a standard interface between the program and MCR. All operating procedures described in the DSKH documentation hold equally well for this program.

3.1 Initialization. See DSKH documentation. (409172)

3.2 Test Program Parameters. See DSKH documentation. The program is called by typing the name D2090

3.2.1 In addition to the normal parameters, it is necessary to enter a parameter to enable writing on the disc in test 2. This parameter is V17/D[illegible]. If this parameter is not entered, only reading and comparing will occur in test 2.

3.2.2 As in the other test programs, the starting cylinder and track address for testing set to ØØ5ØØØØ. If the entire disc is to be written, parameter V15/CC/hh must be entered where cc = cylinder number and hh = head number; both in decimal.

3.2.3 The defective and alternate track numbers in test 3 are entered by typing in parameters V15/CC/hh and V16/CC/hh respectively.

3.3 Test Program Messages. The DSKH documentation describes all test entry and exit messages and a standard I-O error message. Data errors are detected by the program, and all data error messages are contained in the program.

3.3.1 Test 2

In addition to the error messages printed by the handler, test 2 can type the following on the console:

```
HA - TD READ COMPARE ERROR
EXPECTED X--------------X
READ     X--------------X
```

where X--------------X are the home address and track descriptor records.

3.3.2 Test 3

An additional message is:

```
ALTERNATE TRACK CHOSEN IS BAD OR BEING USED CHOOSE NEW ALTERNATE TRACK
AND RERUN
```

4. SUPPLEMENTARY DATA

4.1 Supplementary Software Information. Each test of the program is entered separately by DSKH and stands alone. It could be extracted from the rest of the program and either be eliminated or assembled by itself with DSKH.

4.2 Supplementary Hardware Information. See DSKH documentation.

4.3 Modified Use of V17 for Test 2. Modified use of V17 parameter. If V17/D0 is entered, then all home address and track descriptor records are written. If V17/E0000000 is entered, then previously flagged defective tracks are left as is. This removes the need for another surface analysis on a previously flag disc.

V17/E0 will save previously flagged defective and alternate tracks.

V17/XX will re-prep all tracks (where XX is any hexadecimal character).

It is not longer necessary to use the full eight characters on the V17 option. Only the first two are necessary.

4.4 R2 (Used in Test 3 & 4)

On a Read Compare Error which occurs in a subtest (3 & 4) and is not part of a general error message, R2 may be used to flag a track defective and continue on with the subtest.